Daniel Liu

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Education

Professional Science Master's Program, Rutgers University   **Expected Graduation: May 2023**
Discovery Informatics & Data Science

School of Environmental & Biological Sciences, Rutgers University Honors College   **Graduation: May 2022**
Major in Bioinformatics | Minor in Computer Science | Rutgers Trustee Scholar   *GPA: 3.8/4.0*

Professional Experience

Bromberg Lab   **New Brunswick, NJ**
Undergraduate Researcher   *February 2021- February 2022*
- Implemented a RNN model capable of next character prediction in viral read DNA as a base for transfer learning
- Strategically assess how publicly available genomic data can be leveraged in downstream transfer learning tasks
- Conduct literature searches for relevant computational methods and applications in biology

WINLAB Summer Research Program   **New Brunswick, NJ**
Machine Learning Intern   *June 2021- August 2021*
- Constructed a dual-input CNN model capable of identifying individuals with 60% accuracy using Wi-Fi data
- Learned concepts behind Wi-Fi channel state information (CSI) and opportunities for application with ML
- Worked collaboratively with graduate students to develop and present a deep learning project

Admera Health   **South Plainfield, NJ**
Bioinformatics Intern   *January 2020 - March 2021*
- Developed a web scraper to compile information on thousands of genes and decrease lookup time by 98%
- Worked closely with human genomic data generated by the company's pharmacogenetic (PGx) panel
- Designed a program to capture DNA sequences indicative of predisposition to certain genetic diseases
- Analyzed two pipeline components to determine the option that maximizes mutation detection rate

Projects

Virus Genome Language Model   *February 2021- Present*
- Trained a LSTM language model on viral DNA and achieved reasonable accuracy for next nucleotide prediction
- Leveraged the trained model in transfer learning tasks and achieved 87% accuracy in identifying virus DNA

Mobile User Authentication Using Wi-Fi Data   *August 2021*
- Designed a CNN model using time and frequency domain plots of Wi-Fi channel state information to predict user identity and current activity (sitting, squatting, walking)
- Achieved 70% activity recognition and 60% user recognition on a dataset of 5 users conducting 3 activities

Cancer Biomarker Web Scraper   *January 2020*
- Created a Python web scraper to compile information on cancer biomarkers from mycancergenome.org

Leadership and Activities

Chinese Christian Fellowship   **New Brunswick, NJ**
Large Group Coordinator   *September 2019 – Present*
- Manage and direct a team of student leaders to organize weekly large group meetings with 40+ regular attendees
- Coordinate logistics of renting room space and transporting necessary equipment to large group meetings
- Collaborate with other student organizations to promote attendee involvement and interpersonal connections
- Assess needs and interests of the community and plan events and topics to fulfill them

Skills

Technical Skills: Python, Jupyter Notebook, SQL (mySQL), Linux (command line), Java, Microsoft Office
Libraries (Python): Tensorflow, fastai, pandas, NumPy, Matplotlib, csv, Conda